PATENT COOPERATION TREATY

From the

INTERNATIONAL SEARCHING AUTHORITY

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| To: YOU ME Patent & Law Firm | | PCT (2005. 7, 2 5 | | | | | | | | |
| Seolim Bldg., 649-10 Yoksam-dong, Kangnam-ku, Seoul 135-080 Republic of Korea | | WRITTEN OPINION OF THE RECEIVED INTERNATIONAL SEARCHING AUTHORITY (PCT Rule 43bis.1) | | | | | | | | |
| - | | Date of mailing (day/month/year) 22 JULY 2005 (22.07.2005) | | | | | | | | |
| Applicant's or agent's file reference | | FOR FURTHER ACTION | | | | | | | | |
| OPP050258KR | | See paragraph 2 below | | | | | | | | |
| International application No. | International filing date | | | | | | | | | |
| PCT/KR2005/000888 | 25 MARCH 2005 (| | | | | | | | | |
| International Patent Classification (IPC) | or both national classifica | tion and IPC | | | | | | | | |
| IPC7 C07K 14/435, C12N 15/12 | | | | | | | | | | |
| Applicant | | | | | | | | | | |
| POSTECH Foundation et al | | | | | | | | | | |
| Box No. I Basis of the opi Box No. II Priority Box No. III Non-establishm Box No. IV Lack of unity Box No. V Reasoned state citations and ex Box No. VI Certain docum Box No. VII Certain defect Box No. VIII Certain observ 2. FURTHER ACTION If a demand for international prelimi International Preliminary Examining other than this one to be the IPEA ar opinions of this International Search If this opinion is, as provided above, IPEA a written reply together, where of Form PCT/ISA/220 or before the For further options, see Form PCT/I | 1. This opinion contains indications relating to the following items: Box No. I Basis of the opinion | | | | | | | | | |
| 3. For further details, see notes to Form | n PC1/ISA/220. | | | | | | | | | |
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Name and mailing address of the ISA/KR

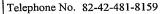


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Authorized officer

PARK, JEONG UNG





WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.

PCT/KR2005/000888

| UX INU | . 1 Dasis of this opinion |
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| | |
| | h regard to the language, this opinion has been established on the basis of the international application in the language in ch it was filed, unless otherwise indicated under this item. |
| | This opinion has been established on the basis of a translation from the original language into the following language, which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)). |
| | |
| . Wit | th regard to any nucleotide and/or amino acid sequence disclosed in the international application and necessary to the med invention, this opinion has been established on the basis of: |
| a. t | ype of material |
| | a sequence listing |
| ļ | table(s) related to the sequence listing |
| b. f | format of material |
| | in wirtten format |
| | in computer readable form |
| c. ti | me of filing/furnishing |
| | contained in the international application as filed. |
| | filed together with the international application in computer readable form. |
| | furnished subsequently to this Authority for the purposes of search. |
| _ | In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been |
| 3. | filed or furnished, the required statements that the information in the subsequent or additioanl copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished. |
| | filed or furnished, the required statements that the information in the subsequent or additioanl copies is identical to that |
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WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.

PCT/KR2005/000888

Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

| Novelty (N) | Claims 2-9, 11-49 | YE |
|-------------------------------|-------------------|-------|
| | Claims 1, 10 | NO NO |
| Inventive step (IS) | Claims 2-9, 11-49 | YES |
| | Claims | NO |
| Industrial applicability (IA) | Claims 1-49 | YE |
| | Claims | NO |

2. Citations and explanations:

This present invention relates to a bio-adhesive derived from mussel, and more particularly to a novel Mytilus galloprovincialis foot protein-5(MGFP-5) and a recombinant protein that is a hybrid of MGFP-5 and foot protein-1(FP-1).

The following documents have been considered for the purpose of this report:

D1: NCBI Accession No. AASOO463 (Feb. 01, 2004)

D2: US 5202236 (Apr. 13, 1993)

1. Novelty

Claims 1 and 10 describe an MGFP-5 gene and protein. The protein of the present invention are useful in enhancing plant tolerance to cold, salt or drought stress when the protein is overexpressed in the plant. However, document D1 discloses a foot protein-5 from Mytilus galloprovincialis which has the same sequence with the present invention. Therefore, the subject-matter of claims 1 and 10 is not considered to be novel under PCT Article 33(2).

2. Inventive Step

D1 provides the same sequence with claims 1 and 10 of the present invention. D2 discloses application of the techniques of recombinant DNA technology to the production of bioadhesives of the type produced by marine animals such as mussels, barnacles and oysters. In this present invention, a recombinant protein that is a hybrid of MGFP-5 and foot protein type 1(FP-1), and a method of producing an adhesive protein is not described in any of the prior art. Therefore, the subject-matter of claims 2-9 and 11-49 is considered to involve an inventive step under PCT Article 33(3).

3. Industrial Applicability

The subject-matter of claims 1-49 is considered to be industrially applicable under PCT Article 33(4).

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.

PCT/KR2005/000888

| ox No. VIII Certain observa | tions on the interna | ational application | | | | | | | | | |
|---|--------------------------------|-----------------------|-----------------------|----------------|-------------------|-------|--|--|--|--|--|
| The following observations on supported by the description, a | the clarity of the clare made: | aims, description, ar | nd drawings or on the | question wheth | er the claims are | fully | | | | | |
| Claims 2 and 12 do not meet the requirements of Article 6 PCT in that the matter for which protection is sought is not clearly defined. The term " a peptide for improving a physicochemical property of the adhesive protein" in claims 2 and 12 has no clear signification. | | | | | | | | | | | |
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